

Oppositional Defiant Disorder and the Impact of Parental Relationship Status:

A Structural Equation Modelling Approach

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I declare that this thesis is my own work and that, to the best of my knowledge and belief, it does not contain material from published sources without proper acknowledgement, nor does it contain material which has been accepted for the award of any other higher degree or graduate diploma in any university.

Stefanie O'Rourke

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**Oppositional Defiant Disorder and the Impact of Parental Relationship Status:**  
**A Structural Equation Modelling Approach**  
Stefanie O'Rourke

## Abstract

ODD is characterised by an ongoing pattern of defiant behaviour toward authority figures that exceeds the bounds of normal childhood behaviour. An investigation of the impact of parental relationship status on children with ODD was conducted. The study examined the applicability of a path model in which the direct paths from parental relationship status to internalising and externalising child symptoms were postulated and indirect paths via both family adjustment and maternal psychopathology also were proposed. Additionally, it was hypothesised that family adjustment and maternal psychopathology would have direct effects on internalising and externalising child symptoms. Participants were clinic-referred children, diagnosed with ODD between 5 and 11 years of age, from intact ( $N = 288$ ) and non-intact families ( $N = 279$ ). Self-rating measures on family adjustment, maternal psychology and child behaviour were completed. Structural equation modelling analyses indicate support for model applicability, with the exception of direct effects of family adjustment on internalising and externalising child symptoms. Additionally, the direct path from parental relationship status to internalising symptoms was only a trend towards significance. The findings suggest that for children with ODD, divorce, separation and maternal psychopathology elevate the risk of increased symptom severity. It was concluded that therapy may need to focus on family adjustment to reduce the risk of internalising and externalising child symptoms. Additionally, positive parenting strategies may enhance outcomes for those children with severe or comorbid symptomology.

Defiant behaviour or non-compliance is behaviour in which a child resists a caregiver (APA, 2013). Oppositional behaviour may be displayed in a variety of passive or active ways. For example, children may ignore instructions from a parent (i.e., passive), or they may outwardly refuse to comply with a parental demand (i.e., active) (Matthys & Lochman, 2010). Oppositional behaviour is seen to be a normal feature of various developmental stages of early childhood and adolescence.

However, when these behaviours persist beyond developmental expectations and impair functioning, a diagnosis of oppositional defiant disorder (ODD) may be appropriate (APA, 2013). According to Nock, Kazdin, Hiripi, and Kessler (2007), lifetime prevalence rates for ODD are estimated to be 10.2 percent (males = 11.2%; females = 9.2%). Of those, most (92.4%) meet the diagnostic criteria for a least one other lifetime disorder. For example, these conditions include anxiety (62.3%), impulse-control (68.2%), mood (45.8%), and substance use (47.2%) disorders. Additionally, it also has been demonstrated that in most cases of comorbidity, ODD presents as the primary disorder (Nock et al., 2007).

This suggests that the presence of ODD may increase the risk of developing a secondary disorder. Indeed, Nock et al. (2007) found that active and remitted ODD are significant predictors of later disorders, suggesting that ODD may indicate a vulnerability to a range of psychopathology that do not necessarily relate to the continued presence of ODD. This finding may reflect an indirect relationship between ODD and other disorders. For example, oppositional behaviour may result in long-term interpersonal, academic, or legal problems (i.e., limited support, educational and occupational opportunities), which may lead to an increased risk of anxiety, mood and substance dependence and abuse disorders, even after the ODD

has remitted.

Indeed, oppositional behaviour is more likely to be expressed to others known well to the child and may not be apparent in school or community settings. Children with ODD generally do not recognise themselves as defiant or oppositional, but see their behaviour as a reasonable response to unreasonable expectations or demands (APA, 2013). Opposition is shown by deliberate actions intended to annoy others or as expressions of verbal aggression (APA, 2013). Conflict between the child and parent may lead to a destructive pattern of interaction that escalates the negativity within the child-parent relationship and between the parents. Conflict within the family may lead to a break down in family functioning (Edwards, Barkley, Laneri, Fletcher, & Metevia, 2001).

Bögels and Brechman-Toussaint (2006) found that family relationship dysfunction is greater in families with mothers experiencing internalising clinical symptoms. For example, maternal depression has been shown to increase the risk of internalising and externalising symptoms in children (Goodman et al., 2011). Furthermore, Spence, Najman, Bor, O’Callaghan, and Williams (2002) found that maternal anxiety and depression, parent relationship conflict and marital break-up during early childhood significantly increased the risk of anxiety-depression symptoms during adolescence. Taken together, family dysfunction and maternal psychopathology may increase the likelihood that a child with ODD is at an increased risk of developing comorbidity or a wide range of subsequent mental disorders.

### **Definition of the Problem**

Despite the prevalence of ODD, relatively little is known about the relationship between ODD and families experiencing divorce and separation (i.e.,

non-intact families). Although, it has been established that marital conflict contributes to internalising and externalising symptoms in children (Cummings, Keller, & Davies, 2005), research to date has not specifically examined the relationship between divorce and separation and ODD.

In research conducted by Wymbs and colleagues (2008), divorce was found to be more likely among parents of youth diagnosed with attention-deficit/hyperactivity disorder (ADHD) than of parents of children without ADHD. Indeed, among those families of youth with ADHD, childhood characteristics such as oppositional-defiant/conduct problems predicted the timing of divorce. It was concluded that parent and child characteristics likely interact in such a way to intensify marital discord which may lead to divorce in families of children with ADHD (Wymbs et al., 2008).

Divorce generally has negative consequences for both children and adults (Amato, 2000, 2001). Kelly and Emery (2003) found that divorce had a negative impact on the adjustment of children. Moreover, divorce has been shown to be a key predictor in determining the long-term treatment outcomes for children with ODD (Webster-Stratton, 1996). Therefore, it appears that divorce not only may contribute to the development of internalising and externalising problem behaviour, but that divorce also may contribute to the development and maintenance of ODD.

### **Overview of Thesis**

Given the complexity of the relationship between family adjustment, maternal psychopathology, and ODD, it is imperative that the impact of divorce and separation be examined. Therefore, the aim of the current study was to investigate child psychopathology in a family context utilising parental relationship status as a predictor of internalising and externalising symptoms, and family adjustment,

maternal psychopathology, and their relationship to the internalising and externalising symptoms of children with ODD.

The thesis begins with an examination of oppositional defiance. The nature of ODD is explored. Further, the literature related to the aetiology of ODD is addressed. Consideration is given to the features of ODD in a family context. In addition, family adjustment and family structure are examined in the context of their relationship to child psychopathology. Finally, the literature pertaining to maternal psychopathology and internalising and externalising problem behaviours is reviewed and critically analysed.

This leads to an investigation being conducted that will examine the applicability of parental relationship status as a predictor of internalising and externalising problem behaviour, the relations involving family adjustment, maternal psychopathology, and internalising and externalising problem behaviour. The findings are presented along with the limitations of the study and directions for future research. An interpretation of the results in terms of the implications for understanding ODD in a family context is considered.

### **Oppositional Defiant Disorder**

ODD is characterised by an ongoing pattern of hostile and defiant behaviour toward authority figures that exceeds the bounds of normal childhood behaviour. Although it is recognised that there are some changes to the diagnostic criteria in the *Diagnostic and statistical manual of mental disorders* (DSM-5; APA, 2013), according to the DSM-IV-TR (APA, 2000), in order to establish a diagnosis of ODD, the following criteria need to be met for the disorder.

Table 1

*DSM-IV-TR Criteria for Oppositional Defiant Disorder*

Criterion	
A.	<p>A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present</p> <ul style="list-style-type: none"> <li>(1) often loses temper</li> <li>(2) often argues with adults</li> <li>(3) often actively defies or refuses to comply with adults' requests or rules</li> <li>(4) often deliberately annoys people</li> <li>(5) often blames others for his or her mistakes or misbehaviour</li> <li>(6) is often touchy or easily annoyed by others</li> <li>(7) is often angry and resentful</li> <li>(8) is often spiteful or vindictive</li> </ul>
<p>Note: Consider a criterion met only if the behaviour occurs more frequently than is typically observed in individuals of comparable age and developmental level.</p>	
B.	The disturbance in behaviour causes clinically significant impairment in social, academic or occupational functioning.
C.	The behaviours do not occur exclusively during the course of a Psychotic or Mood Disorder.
D.	Criteria are not met for Conduct Disorder, and, if the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

*Note:* Archival data used in the current study were collected based on criteria from the DSM-IV-TR.

Subgroups of symptoms are not identified for ODD. However, when close consideration is paid to the various symptoms in criterion A for ODD, the potential for heterogeneity is clear. Indeed, two of the symptoms of ODD are explicitly oppositional and defiant in nature: 'often argues with adults' and 'often actively defies or refuses to comply with adults' requests or rules', though the remaining six symptoms are not (Matthys & Lochman, 2010). Therefore, it is possible to diagnose a child with ODD who does not display any clearly oppositional or defiant behaviour.

Of the remaining six symptoms, two relate to emotional dysregulation: 'is



often touchy or easily annoyed by others’, a mild form, and ‘often loses temper’, a more severe symptom. There is one symptom related to emotion, ‘is often angry and resentful’, and one that is an expression of confrontation ‘often deliberately annoys people’. Lastly, there are two symptoms that reflect hostility: one is mild, ‘often blames others for his or her mistakes or misbehaviour’, and the other is severe, ‘is often spiteful or vindictive’. Although, it is expected that ODD symptoms are generally manifested in the home and the disorder does not require the presence of the behaviour in the school or community settings, the presence of four symptoms outside of the home does not exclude a diagnosis. Therefore, according the DSM-IV-TR, behaviours need only be present in one setting (APA, 2013). The notable marker for diagnosis is the consideration that the behaviour occurs more frequently than is typically observed in individuals of comparable age and developmental level. Therefore, a distinction needs to be made between normative behavioural disruption and atypical presentations.

### **The Nature of the Problem**

Self-control is developed in early childhood. The ability to delay gratification, frustration tolerance, behavioural flexibility, and increasing verbal negotiation skills are all abilities that emerge and consolidate during this time. It is a period of expansion not only of the social world of the child, but of the expectations of parents and significant others. Therefore, as these developments converge so too does normative behavioural disruption (Wakschlag et al., 2005).

Indeed, as goal-directed behaviour, verbal skills, motor dexterity and self-awareness increase in complexity so too does a push for independence on the part of the child (Keenan & Wakschlag, 2002). Simultaneously, parents begin to set limits and rules in response to the child’s efforts toward autonomy. These processes

contribute to conflict in the parent-child relationship and can lead to expressions of frustration and distress (Keenan & Wakschlag, 2002).

In order to diagnose ODD, atypical behaviour must be identified as causing clinically significant distress and impairment (APA, 2013). Therefore, as milder forms of defiance are frequent during early childhood, distinctions need to be made between normal patterns of behaviour disruption and atypical presentations. Keenan and Wakschlag (2002) suggested that the pervasiveness, intensity, and intransigence of these behaviours are critical factors in distinguishing between typical assertions of autonomy and emotional reactivity and ODD.

For example, typical expressions of frustration and distress are likely to occur in response to fatigue or in the presence of limit setting. In general, the intensity is usually mild to moderate, and even when highly intensive often the behaviour abates quickly with rapid recovery particularly in the presence of adult support. Conversely, children with ODD are more likely to have frequent outbursts that are more easily triggered, last for longer periods and are poorly modulated, even in the presence of adult support (Wakschlag et al., 2005). Indeed, normative aggression at a young age tends to reflect an inability to resolve conflict with others rather than an attempt to deliberately cause harm. In ODD presentations, aggression can have a deliberate quality and may be hostile or vindictive in nature (Wakschlag et al., 2005). Consequently, a consideration of the development of ODD may assist in identifying the factors which produce or predispose children toward the disorder.

### **Aetiology**

According to Burke, Loeber, and Birmaher (2002), the biological factors related to an aetiological explanation of ODD are largely hypothetical. Behavioural genetic research has found some evidence of an association between genetic factors

and disruptive behaviour disorders (DBD) like ODD (Burke et al., 2002). Clinical interview data from a twin study demonstrated that there may be an underlying common condition for ODD and conduct disorder (CD; Eaves et al., 2000). Additionally, Pike, McGuire, Hetherington, Reiss, and Plomin (1996) assessed familial negativity with depressive symptoms and antisocial behaviour in adolescents and found that parental and sibling negativity is significantly associated with adolescent adjustment. Although this was accounted for through non-shared familial environmental processes, genetic factors explained most of the association (Pike et al., 1996).

Behavioural genetic research is limited by the capacity to differentiate between the influences of different informants, developmental stages and shared versus non-shared environmental contributions (Pike et al., 1996). In addition to genetic evidence, it does appear that disruptive and antisocial behaviour aggregate in families (Burke et al., 2002), although sex differences are evident (Pfiffner et al., 1999). Boys with comorbid ADHD and DBD are associated with paternal externalising behaviours, although this association is stronger in comorbid CD than ODD.

Indeed, researchers found that even when ADHD was not present associations between parent and child internalising disorders were found. Moreover, an association between parent and child externalising disorders also was found in the study. Although there also is a link between mother-daughter antisocial behaviour, it appears that this influence relates more to distress than parenting behaviour (Kaplan & Liu, 1999). However, separating out the contributing genetic factors from the environmental risk factors of familial disruptive behaviour requires ongoing research.

In addition, temperament is considered to be a constitutional aspect of

childhood development and when dysregulated may induce maladaptive parenting and insecure attachment (Bowlby, 1982; Lytton, 1991). Early temperament features in children, specifically intense and reactive responding, negative emotionality, and inflexibility have been shown to be predictive of externalising behaviour problems by late childhood (Burke et al., 2002; Lahey, Waldman, & McBurnett, 1999). Indeed, a twin study found that there was a significant genetic contribution to the association between temperamental emotionality and aggressive behaviour (Gjone & Stevenson, 1997). Therefore, temperament may provide a link between biological predisposition and the later development of disruptive behaviour and, consequently, may be a key marker for children at risk of developing ODD.

Child functioning, as indicated by temperament and attachment, suggests that the development of disruptive behaviour is marked by behaviours very early in childhood (Lahey et al., 1999). Links between deficits in reading, intelligence, academic performance, and neuropsychological functioning and disruptive behaviour have been found (Burke et al., 2002). However, these findings are often confounded by factors such as comorbid ADHD, early psychosocial influences and sex differences (Burke et al., 2002). Nevertheless, the heterogeneity of ODD would make it unlikely that any one factor would be a precursor to the disorder without being mediated by other factors.

Psychosocial factors, such as child abuse and parenting, add to the aetiological explanation. In a longitudinal study, those that reported childhood sexual abuse showed higher rates of conduct problems, substance use, mood and anxiety disorders (Fergusson, Horwood, & Lynskey, 1996). In addition, poor parenting has been shown to be related to disruptive behaviour (Kaplan & Liu, 1999). Kaplan and Liu (1999) argued that whereas both parenting behaviour and

psychopathology contribute to the development of ODD, parental psychopathology may be a stronger factor. Additionally, research regarding abusive parenting has demonstrated a significant increase in risk of conduct problems in children (Fergusson et al., 1996). In addition, parenting behaviour has been demonstrated to mediate the relationship between socioeconomic status and conduct problems (McLoyd, 1998). It appears that correlates of socioeconomic disadvantage (i.e., stress, financial difficulties, and lack of education and employment opportunities) may influence the capacity of parents to appropriately respond to children, leading to disruptive behaviour problems.

The heterogeneous nature of ODD makes it unlikely that any one factor would produce or predispose children to the disorder without being mediated by other factors. Indeed, child factors such as temperament and attachment appear to influence child vulnerability and functioning, and the interactions between the child and the family. Additionally, family factors such as genetics, family conflict and aggression, parenting behaviour, and psychopathology may impact on the development and maintenance of ODD. Therefore, examining ODD in the context of the family is essential.

### **Oppositional Defiant Disorder in a Family Context**

According to Bowen's family systems theory (Bowen, 1978), a child is part of a family system in which their sense of 'self' develops (i.e., differentiation of self). Indeed, the differentiation of self determines the impact of others on one's functioning and the degree to which one attempts, actively or passively, to control the functioning of others (Skowron, Stanley, & Shapiro, 2009). Those with a clearly defined sense of self have a greater capacity to emotionally regulate, are less reactive to stressful situations, and are more able to maintain relationships with significant

others (Skowron et al., 2009). Conversely, the less differentiated are thought to experience more interpersonal difficulties and have less capacity to regulate emotion (Kerr & Bowen, 1988). This can manifest as a tendency for some to control or pressure agreement with their position (Kerr & Bowen, 1988).

Additionally, the development of child psychopathology can be understood in terms of attachment theory (Bowlby, 1982). According to Bowlby (1982), the quality of attachment between an infant and caregiver provides a construct of self, others, and the relationship between the two (i.e., a secure or insecure internal working model). Wartner, Grossmann, Fremmer-Bombik, and Suess (1994) found that insecurely attached children were less competent socially, showing more attribution of hostility and greater behaviour problems than children with a secure attachment style. Indeed, children from families that had experienced stressful life events (e.g., arguments with in-laws, divorce, foreclosure on mortgage, parent detained in gaol) and who were classed as insecurely attached at 15 months of age were found to exhibit more anxiety symptoms in grade one than securely attached children from families that experienced similar events (Dallaire & Weinraub, 2007).

Furthermore, stressful life events can negatively impact on the mental health and development of children and adolescents (Furniss, Beyer, & Müller, 2009; Grant et al., 2003). Not only can internalising and externalising problem behaviours develop in children experiencing family dysfunction and other stressors, these problem behaviours have been found to be highly comorbid (Lilienfeld, 2003). For example, Greene et al. (2002) found that ODD was highly comorbid with mood and anxiety disorders (i.e., internalising problem behaviour). Additionally, ODD also has been shown to be highly comorbid with ADHD (Nock et al., 2007).

Factors such as family instability and stress, insecure parent-child

attachments, child temperament, parental psychopathology and criminality have been found to contribute to the development of ODD (Kann & Hanna, 2000). Children with ODD have a greater risk of developing conduct disorder and delinquency, which may lead to greater involvement in the criminal justice system and mental health agencies throughout their lives (Reid, Webster-Stratton, & Hammond, 2003). Additionally, ODD symptoms in adolescence have been found to be antecedent to adult antisocial personality in males and ODD may represent an early expression of sociopathic personality traits (Langbehn, Cadoret, Yates, Troughton, & Stewart, 1998). Therefore, understanding the relationships between the factors that contribute to the development and maintenance of ODD is vital. One such factor that appears to be critical in the development of ODD is family functioning.

### **Family Adjustment**

Harvey, Metcalfe, Fanton, and Herbert (2011) stated that early family functioning may be linked with disruptive behaviour as difficult early childhood characteristics may both elicit family dysfunction and lead to the development of later problems, such as ODD. It was found that children at 3 years of age who were exposed to maternal depression, overreactive parenting practises, lower family income and marital conflict tended to have more ODD symptoms by the age of 6 years and were less likely to show improvement (Harvey et al., 2011). This was particularly the case when exposed to maternal depression and paternal overreactivity, which were linked to initial linear changes in ODD symptoms at 3 years (Harvey et al., 2011).

Indeed, it has been suggested that children with conduct problems, such as ODD, are taught by family members to perform oppositional behaviours (Patterson, DeBaryshe, & Ramsey, 1989). In highly aversive family systems, the child uses

increasingly noxious behaviours to escape intrusions or demands by other family members (Patterson et al., 1989). This process of escape-conditioning is referred to as the *coercion hypothesis* (Patterson et al., 1989). This pattern of family dysfunction is linked to a second problem. Not only does the child learn to control other family members by coercive means, pro-social behaviours are frequently ignored or dealt with inappropriately which may lead to a deficit in social skills (Patterson et al., 1989).

Family relationship dysfunction has been found to increase the likelihood of internalising and externalising behaviours in children (Cummings et al., 2005). In a community sample of mothers and fathers ( $N = 235$ ) of kindergarten children, increased parental depressive symptoms were associated with increased marital conflict, insecure marital attachment, less parental warmth, more psychological control in parenting, and an increase in internalising and externalising problems in children. It also was found that marital relations mediated child outcomes (Cummings et al., 2005). However, contrary to the *coercion hypothesis*, parenting was not found to be a mediating factor (Cummings et al., 2005). Therefore, marital discord may be reactive to depressive symptoms in parents, so that the marital discord mediates internalising and externalising behaviour in children. Consequently, understanding of the impact of divorce is essential to the examination of the risk factors for children diagnosed with ODD.

### **Family Structure**

In addition to marital discord, divorce has been shown to have a negative impact on the adjustment of children (Kelly & Emery, 2003). This supports earlier findings from evaluative studies into parent-training programs. A study assessing treatment effectiveness for parents of children with conduct problems found that



independent observations of child behaviour and teacher reports indicated that marital status was the best predictor of observed child defiance in the home (Webster-Stratton & Hammond, 1990).

In a similar study, when conducting a 3-year follow-up on treatment interventions for families of children with ODD and CD, divorce, marital distress, and negative life stress were found to be the key predictors in determining continuing externalising problems in children (Webster-Stratton, 1996). Indeed, the best predictor for child defiance in home observation was single-parent status or marital adjustment (Webster-Stratton, 1996). Therefore, it appears that separation and divorce not only may contribute to the development of internalising and externalising problem behaviour, but that separation and divorce also may contribute to the development and maintenance of ODD.

Indeed, Robbers et al. (2011) found that early childhood externalising problems both precede and predict later parental divorce. In a large sample of children ( $N = 6,426$ ), ratings of internalising and externalising problems were collected at age 3 and 12 years. A comparison between children whose parents divorced between age 3 and 12 years and those whose families remained intact indicated that girls from separated families showed more externalising problems at 3 years than girls from intact families (Robbers et al., 2011). Additionally, higher levels of externalising behaviour at age 3 in girls predicted later parental divorce (Robbers et al., 2011). Indeed, children at age 12 showed more internalising and externalising problem behaviour from non-intact families than from intact families. Consequently, children with ODD from non-intact families may be at risk of increased symptom severity than those from intact families (Robbers et al., 2011). In addition to divorce, maternal symptomology also has been shown to be a risk factor

in the development of child psychopathology (Goodman et al., 2011).

### **Maternal Psychopathology**

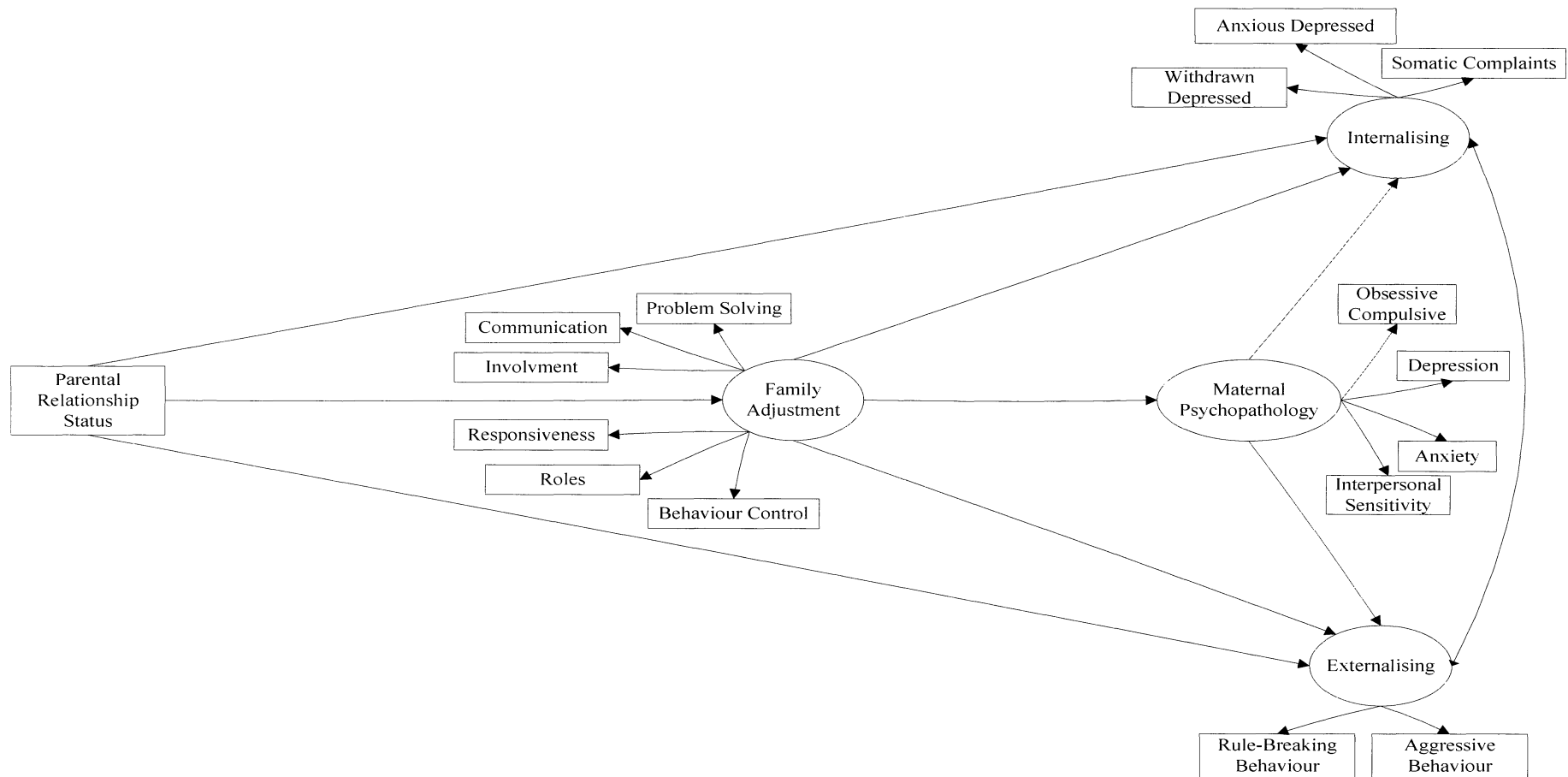
Child psychopathology also has been linked to maternal clinical symptoms (i.e., maternal psychopathology). For example, maternal depression has been associated with significantly higher rates of childhood internalising and externalising behaviour problems relative to those whose mothers were not experiencing depression (Goodman et al., 2011). Furthermore, a longitudinal study by Spence et al. (2002) found that maternal anxiety and depression, parent relationship conflict and marital break-up during early childhood significantly increased the risk of anxiety-depression symptoms during adolescence. Indeed, a failure in the differentiation of self and others (e.g., parent-child) is characterised by excessive enmeshment or disengagement in families of patients with an anxiety disorder (Frey & Oppenheimer, 1990).

Moreover, Stanger et al. (2002) found a relationship between family problems, maternal problems (i.e., drugs, medical and psychiatric problems) and children's internalising and externalising problems. In families with drug dependent parents family problems were found to mediate relations between maternal and child problems (Stanger et al., 2002). Indeed, maternal psychological symptoms predicted family problems in the Stanger et al. (2002) study. Additionally, family relationship dysfunction has been shown to be greater in families with mothers experiencing clinical symptoms (Bögels & Brechman-Toussaint, 2006). Therefore, family dysfunction may increase the likelihood of maternal psychopathology, which in turn may lead to increased risk of internalising and externalising symptoms in children diagnosed with ODD.

### **The Current Study**

Based on the theoretical and empirical literature reviewed above, it is postulated that direct paths from parental relationship status to internalising and externalising symptoms will be indicated. Indeed, indirect paths from parental relationship status to internalising and externalising symptoms via both family adjustment and maternal psychopathology also are proposed. Additionally, it is hypothesised that family adjustment and maternal psychopathology will have direct effects on internalising and externalising child symptoms.

Therefore, the aim of the current study is to examine the applicability of a structural path model involving all these relationships. The hypothesised structural equation model (SEM) used for parental relationship status is shown in Figure 1.



*Figure 1.* The hypothesised model of direct paths from parental relationship status to internalising and externalising symptoms with indirect paths from parental relationship status to internalising and externalising symptoms via family adjustment and maternal psychopathology, and direct effects of family adjustment and maternal psychopathology on internalising and externalising symptoms.

## Method

### Design

The study employed a SEM design. The model examined Parent Relationship Status, as measured by intact and non-intact family groups (Intact = living together; Non-Intact = separated or divorced). Additionally, Family Adjustment was examined – as measured by the *Family Adjustment Device* (FAD; Miller, Epstein, Bishop, & Keitner, 1985). Maternal Psychopathology also was examined – as measured by the *Hopkins Symptom Checklist* (HSCL; Derogatis et al., 1974). Lastly, Child Psychopathology – Internalising and Externalising symptoms were examined as measured by the *Child Behaviour Checklist* (CBCL; Achenbach, 1991).

### Participants

The data for all participants were collected archivally from the Academic Child Psychiatry Unit (ACPU) of the Royal Children's Hospital, Melbourne, Australia. The ACPU is an out-patient psychiatric unit that provides services for children and adolescents with behavioural, emotional and learning problems. Only children diagnosed with ODD between 5 and 11 years, for whom the CBCL had been completed were included in the study. In all, a total of 567 children's records were accessed for the study. The mean age of the participants was 8.46 years ( $SD = 1.81$ ). There were 104 females and 463 males. The mean ages of females and males were 8.50 ( $SD = 1.72$ ) and 8.45 ( $SD = 1.83$ ) years, respectively. A total of 288 children were from intact families and 279 children were from non-intact families.

Demographic and background information for the children with ODD and their families are provided in Tables 2 and 3. Mother and father education (highest level) were coded as: tertiary (7), technical certificate or equivalent (6), high school

or equivalent (5), some years of secondary school (4), primary school (3), some years of primary school (2) and never attended school (1). The family income was coded as: \$50,000 and over (4), \$40,000-\$50,000 (3), \$30,000-\$40,000 (2) and \$0-\$30,000 (1). Table 2 shows the scores for these variables, which were treated as continuous.

Group comparisons were conducted between intact and non-intact families. As can be seen in Table 2 significant group differences were found. The intact families had higher levels of mother and father education and family income than the non-intact families. However, children were significantly older in the non-intact families compared to the intact families. Table 3 shows the percentages for sex, and mother and father employment status. Additionally, the percentages of ADHD and CD for the children derived using the parent version of the Anxiety Disorders Interview Schedule for Children (ADISC-IV; Silverman & Albano, 1996) are shown in Table 3. As can be seen in Table 3, the count for employed mothers was significantly higher than expected for those from intact families. Additionally, the count for unemployed mothers was significantly higher than expected for those from non-intact families.

Table 2

*Means, Standard Deviations, Test Statistics and Effect Sizes of Demographic Variables for Intact and Non-Intact Family Groups*

Information	Intact	Non-Intact	Test Statistics	Hedges $g$
Age - Mean ( $SD$ )	8.28 (1.86)	8.65 (1.74)	$t(565) = 2.45^*$	0.21
Mother education	5.15 (1.25)	4.80 (1.19)	$t(559) = 3.37^{**}$	0.29
Father education	5.29 (1.30)	4.62 (1.14)	$t(517.14) = 6.30^{***}$	0.54
Family income	3.05 (1.17)	1.58 (1.05)	$t(512.32) = 15.03^{***}$	1.32

*Note.*  $SD$  = Standard Deviation,  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$ .

Table 3

*Demographic Frequencies, Test Statistics and Effect Sizes for Intact and Non-Intact Family Groups*

Information		Intact	Non-Intact	Test Statistic	Cohen's $w$
Sex	Male	228	235	$\chi^2(1) = 2.10$	.06
	Female	60	44	$\chi^2(1) = 2.10$	.06
Mother	Employed	141	110	$\chi^2(1) = 4.53^*$	.09
	Home duties	124	109	$\chi^2(1) = 0.65$	.03
	Pension	4	27	$\chi^2(1) = 17.53$	.18
	Unemployed	5	18	$\chi^2(1) = 7.07^{**}$	.11
	Student	12	8	$\chi^2(1) = 0.35$	.03
Father	Employed	253	168	$\chi^2(1) = 25.69$	.22
	Pension	11	12	$\chi^2(1) = 0.19$	.02
	Unemployed	13	44	$\chi^2(1) = 24.41$	.22
	Other	10	14	$\chi^2(1) = 1.16$	.05
DSM-IV	ADHD – Any	241	249	$\chi^2(1) = 3.28$	.08
Disorders	CD	101	149	$\chi^2(1) = 173.79$	.55

*Note:* ADHD = Attention Deficit/Hyperactivity Disorder; CD = Conduct Disorder,  $*p < .05$ ,  $**p < .01$ .

## Measures

The FAD (Miller et al., 1985) is a 60 item, self-report scale that assesses family functioning. Items are measured across a 4-point Likert scale (e.g., 4 = Strongly agree – if you feel that the statement describes your family very accurately, 3 = Agree, 2 = Disagree, 1 = Strongly disagree). Six domains, problem solving, communication, roles, affective responsiveness, affective involvement, and behaviour control, measure functioning. Additionally, the seventh domain, general functioning assesses overall health/pathology. Higher scores indicate higher levels of family dysfunction. Internal consistency for the FAD ranges from .72 to .92 (Miller et al., 1985).

The HSCL (Derogatis et al., 1974) is a 58 item, self-report symptom inventory measured from a 5-point Likert-type scale (0 = Not at all, 1 = A little bit, 2 = Moderately, 3 = Quite a bit, 4 = Extremely). Five symptoms domains are measured (i.e., somatisation, obsessive-compulsive, interpersonal sensitivity, anxiety and depression). Higher scores on the HSCL indicate higher levels of symptomology. Internal consistency on the dimension is high, ranging from .84 to .87 (Derogatis et al., 1974).

The CBCL (Achenbach, 1991) has 120 items rated by parents based on their observations of the child over the preceding six months, on a 3-point Likert-type scale (0 = Not True [as far as you know], 1 = Somewhat or Sometimes True, 2 = Very True or Often True). There are eight domains of childhood psychopathology (Anxious/Depressed; Withdrawn/Depressed; Somatic Complaints; Social Problems; Thought Problems; Attention Problems; Rule-Breaking Behaviour; and Aggressive Behaviour). High scores on the CBCL indicate higher levels of child psychopathology. Cronbach's alpha coefficient is .90 for internalising problems



and .94 for externalising problems (Achenbach, 1991).

The ADISC-IV (Silverman & Albano, 1996) consists of semi-structured child and parent interviews. Based on criteria from the DSM-IV-TR the interviews are designed for the diagnosis of anxiety and other related childhood disorders. The number of presenting symptoms is totalled to obtain a total symptom scale score. If the number of symptoms present is sufficient to meet DSM-IV-TR criteria additional questions are asked related to the level of impairment experienced in the child's life (e.g., school, family life, peers etc.). Impairment ratings using a 9-point scale (i.e., 0 – 8) determine the level of impairment for each diagnosis. A rating of 4 or greater (i.e., leads to at least “some” or a moderate degree of impairment) is needed to warrant a final diagnosis (Silverman & Albano, 1996).

### **Procedure**

The current study extracted archival data. An exemption from ethics approval was obtained from the University of Tasmania's Human Research Ethics Committee (please see Appendix). The study had ethical approval from the Eastern Health and Royal Children's Hospital Ethics Review Boards and all participants gave informed consent for data collection. Children and parents participated in separate interviews and testing sessions, with breaks, over a period of two days. Information also was obtained from teachers using various checklists and questionnaires.

The data collected covered a comprehensive demographic, medical (primarily neurological and endocrinological), educational, psychological, familial and social assessment of the child and his or her family. All psychological data were collected by research assistants, who were advanced doctoral students in clinical psychology, and under the supervision of two registered clinical psychologists. The

children met the criteria for ODD based on DSM-IV-TR with a rating above severity level 4 on subscales of the ADISC-IV (Silverman & Albano, 1996). DSM-IV-TR criteria were used to determine diagnosis of ODD as DSM-5 had not been released at the time the data were being collected. Parental relationship status information was collected as part of the demographic data. Parents – living together was coded as 1 for the intact families group and parents – separated or divorced was merged and coded as 2 for the non-intact families group.

### **Analysis**

The model in the study was analysed using *Mplus* (Version 6.1) software (Muthen & Muthen, 2006). The appropriateness of the model was determined by the fit indices derived from the *Mplus* program. Although *Mplus* calculates the Satorra-Bentler  $\chi^2$  likelihood ratio test statistic for robust maximum likelihood estimators, this statistic is affected substantially by sample size, and as such almost any model will be rejected when the sample size is large (Brown, 2006). In view of this, the fit indices were used to ascertain model fit. *Mplus* provides approximate (or practical) fit indexes for the comparative fit index (CFI), the Tucker-Lewis Index (TLI), the root mean squared error of approximation (RMSEA), and the standard root mean square residual (SRMR). These approximate fit indices were used to evaluate the goodness-of-fit of the model.

The guidelines suggested by Hu and Bentler (1998) are that RMSEA values close to 0.06 or below be taken as good fit. However, Browne and Cudeck (1993) have suggested that RMSEA values from .06 to .08 can be inferred as moderate fit, and 0.08 to .10 as marginal fit. Hu and Bentler (1998) suggested SRMR values of .08 or less taken as indication of good fit. For the CFI and TLI, values of .95 or

above are taken as indicating good model-data fit, with values above .90 indicative of acceptable fit (Hu & Bentler, 1998; Steiger, 1998).

Although model fit was assessed for this study, it was not the only means used to assess the utility of the model. For this study, the key components of the analyses were the regression paths between the key latent/observed variables in the model and, thus, it is the significance or otherwise of these paths, including indirect paths that is the focus of reporting.

## **Results**

The goodness-of-fit values for the model of parental relationship status for the sample was  $S-B\chi^2(96) = 284.06, p < .001$ ; CFI = .931; TLI = .913; RMSEA = .062 (90% CI for RMSEA = .053 – .070); SRMR = .059. These findings indicate acceptable support for the model, with three fit indices showing acceptable fit, and SRMR showing good fit. Loadings for all latent factors were salient ( $\geq .57$ ) and significant ( $p < .001$ ). A Heywood case is noted for the externalising latent variable (loading for aggressive behaviour), and although this is not ideal, it does not invalidate the model (Dillon, Kumar, & Mulani, 1987).

### **Direct Paths**

As can be seen in Figure 2, parental relationship status indicated a significant path to externalising child symptoms. Although the path from parental relationship status to internalising symptoms was not significant, it showed a trend towards significance ( $p = .055$ ). Overall, this indicates that for non-intact families there is an associate risk of an increase in internalising and externalising symptoms for children with ODD.

Additionally, maternal psychopathology showed significant direct effects on internalising and externalising symptoms. Indeed, when symptom severity increases

in mothers, so too does the associated risk of an increase in internalising and externalising symptom severity in children with ODD. Conversely, the predicted direct path from family adjustment to internalising and externalising symptoms was not significant. Therefore, the hypothesised direct effect of family adjustment on child symptoms was not supported in the model.

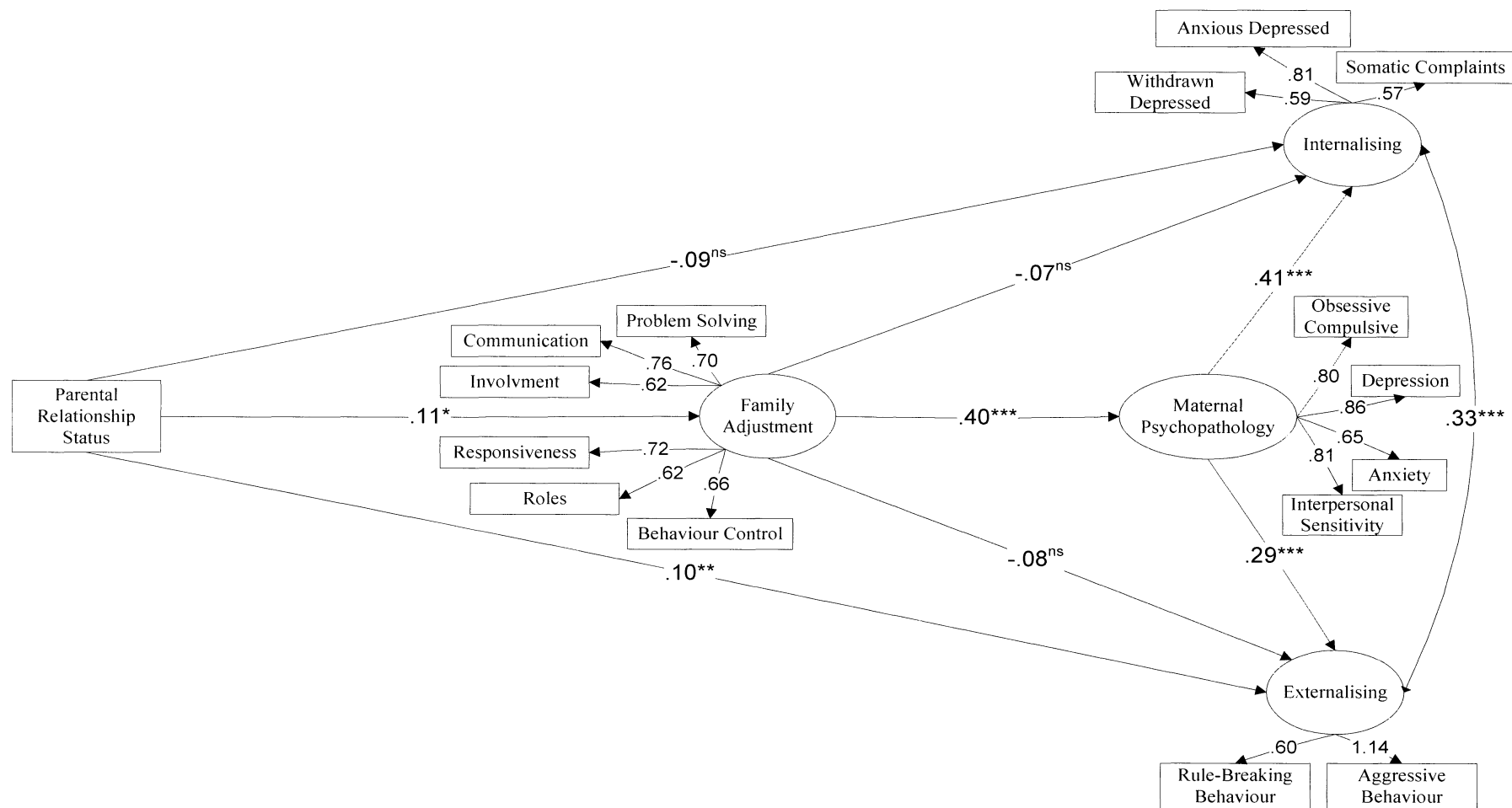


Figure 2. Path model showing standardised loadings for all direct paths in the tested model of the effects of parental relationship status, maternal psychopathology and family adjustment on internalising and externalising disorders. Note: <sup>ns</sup> not significant, \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

### **Indirect Paths**

Figure 2 also shows indirect paths. Parental relationship status also appeared to have an indirect effect on internalising and externalising symptoms, via family adjustment and maternal psychopathology. This also was tested, and both indirect paths indicated significance for internalising and externalising symptoms  $\beta = .018, p = .028$  and  $\beta = .013, p = .035$ , respectively. These significant indirect paths indicate that non-intact families are associated with a higher risk of family dysfunction and that this shows a flow on effect to maternal psychopathology and, in turn, a risk of increased symptom severity for children with ODD.

### **Discussion**

The aim of the current study was to examine ODD in the family context. It was postulated that direct paths from parental relationship status to internalising and externalising symptoms would be indicated and indirect paths from parental relationship status to internalising and externalising symptoms via both family adjustment and maternal psychopathology also were proposed. Additionally, it was hypothesised that family adjustment and maternal psychopathology would have direct effects on internalising and externalising child symptoms. Structural equation modelling analyses indicate support for model applicability, with the exception of direct effects of family adjustment on internalising and externalising symptoms. Additionally, the direct path from parental relationship status to internalising symptoms was only a trend towards significance.

### **Divorce and Separation and Child Psychopathology**

The results of the direct effects for parental relationship status on child psychopathology for children with ODD are consistent with previous research (Amato, 2000, 2001; Hetherington & Stanley-Hagan, 1999; Kelly & Emery, 2003;

Lansford, 2009; O'Connor, Caspi, DeFries, & Plomin, 2000). A large body of evidence demonstrates that divorce increases the risk of psychopathology in children when compared with those from intact families (Amato, 2000, 2001; Hetherington & Stanley-Hagan, 1999; Kelly & Emery, 2003; Lansford, 2009; O'Connor et al., 2000). In two meta-analyses of 93 and 97 studies conducted a decade apart, the largest effects were seen in externalising problems, which included ODD. Additionally, internalising problems, including anxiety and depression also were more common in children from non-intact families, although the findings were less consistent than for the externalising problems (Amato, 2001). This suggests that divorce may increase the risk of symptom severity in children with ODD, increasing the likelihood of later vulnerability, particularly in relation to externalising symptoms (i.e., CD, antisocial and sociopathic personality traits) and an increased risk of legal problems (Nock et al., 2007).

In an adoption study, researchers examined whether genetic factors mediated the association between divorce and children's behaviour problems and substance use (O'Connor et al., 2000). It was found that psychopathology in children from divorce families, regardless of whether they were adopted, was more evident than in children from intact families (O'Connor et al., 2000). This research provides further support for the environmental explanations of the association between divorce and children's poor adjustment (O'Connor et al., 2000). Taken together, with the current findings it could be suggested that children with ODD from divorced families are at an increased risk of substance dependence and abuse.

Additionally, as quality of attachment is thought to impact on children's later adjustment (Dallaire & Weinraub, 2007), divorce occurring early in childhood may contribute to attachment insecurity and the subsequent development of problem

behaviours. According to Tornello et al. (2013), frequent overnights stays with the non-custodial parent were associated with attachment insecurity among infants and attachment insecurity predicted adjustment problems in children at ages 3 and 5 years, particularly in the presence of parent conflict. This suggests that when parents of an infant separate or divorce the attachment process may be impacted upon negatively. In a recent Australian sample, almost one quarter of very young children of divorced or separated parents stayed at least one night and nearly 5 percent spent five or more overnights every fortnight with the non-custodial parent (McIntosh, Smyth, Kelaheer, Wells, & Long, 2010).

Additionally, a comparison between children whose parents divorced between age 3 and 12 years and children from intact families indicated that girls showed more externalising problems at 3 years than girls from intact families (Robbers et al., 2011). Indeed, higher levels of externalising behaviour in girls at age 3 predicted later parental divorce (Robbers et al., 2011). Further, children at 12 years from non-intact families demonstrated more symptomology than did 12 year old children from intact families (Robbers et al., 2011). Robbers et al. (2011) concluded that early childhood externalising problems both precede and predict later parental divorce. Further research would be needed to validate these findings in the context of children diagnosed specifically with ODD. However, the Robbers et al. (2011) findings do suggest that ODD also may precede and predict later divorce.

Studies that have assessed treatment effectiveness for parents of children with conduct problems have found that marital status was the best predictor of observed child defiance in the home (Webster-Stratton & Hammond, 1990). Similarly, a study conducting a 3-year follow-up on treatment interventions for families of children with ODD and CD found that divorce, marital distress, and negative life



stress were the key predictors in determining continuing externalising problems in children (Webster-Stratton, 1996). Taken together, these studies suggest that divorce is a key risk factor in the continuation of externalising symptoms of children with ODD and conduct problem, regardless of treatment interventions.

### **Maternal Psychopathology and Child Psychopathology**

The current study found a direct effect of maternal psychopathology on internalising and externalising symptomology for children with ODD. This finding is consistent with previous research. Significantly higher rates of childhood internalising and externalising behaviour problems have been associated with maternal depression relative to children whose mothers were not experiencing depression (Goodman et al., 2011). A meta-analysis of 193 studies was conducted to examine the association between maternal depression and child behaviour problems and emotional functioning (Goodman et al., 2011).

Goodman et al. (2011) found that maternal depression was significantly related to higher internalising and externalising symptoms, and negative affect and behaviour. Additionally, lower levels of positive affect and behaviour were associated with maternal depression, all associations showed a small effect size (Goodman et al., 2011). However, results were significantly heterogeneous, indicating the likelihood of moderating factors. For children's internalising behaviour problems effect sizes were moderated by the use of specific diagnostic criteria rather than symptom rating scales to determine maternal depression and the use of clinical samples versus community samples (Goodman et al., 2011). The association to externalising behaviour problems and negative affect and behaviour were moderated by low-income (Goodman et al., 2011). Low income can often be a factor in non-intact families, often as a consequence of marital dissolution (Amato,

2000). The current study demonstrated a significantly lower family income in the non-intact families compared with intact families.

In a longitudinal study, 4434 families were followed-up from infancy to adolescence (Spence et al., 2002). Maternal anxiety and depression, poverty, parent relationship conflict and marital break-up during early childhood were shown to significantly increase the risk of anxiety-depression symptoms during adolescence, although the associated magnitude was small (Spence et al., 2002). In addition, although there is a link between mother-daughter antisocial behaviour, it appears that this influence relates more to distress than parenting behaviour (Kaplan & Liu, 1999). Further, it is evident that antisocial and disruptive behaviour aggregate in families (Burke et al., 2002), although sex differences are apparent (Pfiffner et al., 1999).

Boys with comorbid ADHD and disruptive behaviour are associated with paternal externalising behaviours, although this association is stronger in comorbid CD than ODD (Pfiffner et al., 1999). Indeed, Pfiffner et al. (1999) found that even without the presence of ADHD associations between parent and child internalising disorders were found (Pfiffner et al., 1999). Moreover, an association between parent externalising disorders and child externalising disorders also were found in the Pfiffner et al. (1999) study. It is noteworthy that the sample of children diagnosed with ODD in the current study showed high comorbidity with ADHD and moderate levels with CD.

Kaplan and Liu (1999) argued that whereas both parenting behaviour and psychopathology contribute to the development of ODD, parental psychopathology may be a stronger factor. Connolly and Vance (2010) suggested that the association between higher levels of parental psychopathology and higher ratings of aggressive and conduct problems may reflect an impairment in the parents' ability to cope with

the disruptive behaviours, therefore contributing to the maintenance of externalising symptoms. Therefore, the development of ODD may be, in part, a combination of the *coercion hypothesis* (Patterson et al., 1989) and the sequelae of maternal psychopathology. Accordingly, as the child displays oppositional and defiant behaviour in the face of maternal demands, the mother may retreat or may in turn escalate the conflict between them.

### **Family Adjustment and Child Psychopathology**

Although a direct path was hypothesised from family adjustment to internalising and externalising symptoms in children with ODD, this prediction was not supported in the model. This finding is not consistent with previous research (Cummings et al., 2005). Cummings et al. (2005) found that family dysfunction increases the likelihood of internalising and externalising behaviours in children. However, family functioning was measured via marital conflict, spousal attachment, and parental factors (i.e., psychological control and emotional availability).

Additionally, family dysfunction has been shown to predict higher levels of disruptive behaviour disorders, such as ODD (Edwards et al., 2001), and higher rates of childhood aggression (Connolly & Vance, 2010; Harachi et al., 2006). Edwards et al. (2001) reported that youths with ODD/ADHD and their parents rated themselves as having significantly more conflict, more negative communication and more aggressive conflict strategies than did a control group from a community sample. Attention problems, family conflict, and low school commitment and attachment were common predictors of aggression across sex (Edwards et al., 2001). However, for boys, low family involvement and lower parental education were unique predictors and for girls depression, low income, and single-parent status were indicated (Edwards et al., 2001).

Interestingly, Connolly and Vance (2010) also used the FAD and the CBCL to measure family functioning and aggression. The participants in Connolly and Vance (2010) were from the same clinic-referred sample used in the current study. Their findings showed a significant weak, positive correlation ( $r = 0.19$ ) between higher levels of aggression and family dysfunction using the overall FAD general functioning score. Additionally, it was found that in total, the six FAD subscales explained 6.9 percent of the variance in aggression (Connolly & Vance, 2010). However, only roles (2%) and affective involvement (1.2%) significantly predicated aggression (Connolly & Vance, 2010). Indeed, there was more variance explained by scores on the HSCL for aggression (10.8%) than from family dysfunction (Connolly & Vance, 2010). Therefore, this demonstrates a weak association between family dysfunction and externalising symptoms and that a small amount of variance of the externalising symptom of aggression is explained by some aspects of family dysfunction.

The results found in the current study may relate to the fact that although marital conflict or dissolution may be present in some families, parents are still able to maintain functional family dynamics (Hayden et al., 1998). Miller et al. (1985) notes that it would be expected that some family dysfunction would be present in non-clinical families as would functional family dynamic be present in families presenting in clinical settings. Indeed, not all families with a severely disturbed member show significant dysfunction, healthy functioning may be apparent across many dimensions.

Miller et al. (1985) estimated that between 32 and 54 percent of families with members diagnosed with a psychiatric disorder would score in the healthy range on the FAD. Additionally, they stated that between 19 and 36 percent of non-clinical

families would be expected to score in the dysfunctional range on the FAD scale. These estimations may in part provide some explanation for the current findings. Alternatively, the lack of significance in this direct path from family adjustment to child psychopathology may be due, in part, to the fact that the FAD was developed to screen for functioning levels within intact families. Indeed, many of the items may not hold relevance for the non-intact families in the current study (Portes, Howell, Brown, Eichenberger, & Mas, 1992).

### **The Flow On Effect**

Significant indirect paths from parental relationship status to internalising and externalising symptoms via family adjustment and maternal psychopathology were found. Although, the literature does not afford a direct comparison to the current study, association between family dysfunction and maternal psychopathology has been established (Stanger et al., 2002). Evidence has indicated that family dysfunction is greater in families with mothers experiencing clinical symptoms (Bögels & Brechman-Toussaint, 2006).

Bögels and Brechman-Toussaint (2006) reviewed literature related to various family factors that are associated with internalising symptomology in children, such as, attachment, parent relationship, and family functioning. It was reported that more family dysfunction was found when a parent was diagnosed with generalised anxiety disorder compared to control families. Further, mothers with anxiety disorders reported more family dysfunction on the FAD than mothers who had other symptomology. Although, general family dysfunction was associated with parent anxiety disorders and with child trait and state anxiety, the exact nature of the relationship was unclear (Bögels & Brechman-Toussaint, 2006). However, they found no evidence to suggest that family dysfunction is specific to child anxiety

(Bögels & Brechman-Toussaint, 2006). It appears that the relationship may be more general in nature and associated with a broader range of child psychopathology.

Miller et al. (1992) found that in a sample of depressed patients, those from dysfunctional families had significantly higher levels of neuroticism, and a significantly poorer course of illness (i.e., higher level of depression, lower levels of overall adjustment, and they were less likely to recover) than the depressed patients with functional families. In addition, associations between family dysfunction and divorce and diagnoses in children of parents with and without depression were examined by Fendrich, Warner, and Weissman (1990). Higher levels of family dysfunction were found in the depressed group (Fendrich et al., 1990). Additionally, family dysfunction and parental depression were significant predictors of conduct disorders and parental depression was found to be a more important risk factor in predicting child psychopathology (Fendrich et al., 1990). Accordingly, the current results would support these findings, leading to a greater risk of increased symptom severity among those with ODD.

Antisocial personality disorder and substance use also have been associated with family dysfunction and ODD and CD (Frick et al., 1992). In a sample of 177 clinic-referred children aged 7-13 years, those diagnosed with ODD and CD were found to have higher rates of paternal substance abuse and antisocial personality disorder (Frick et al., 1992). Frick et al. (1992) found that mothers of children with CD were poorer at supervision and reported less persistence in discipline than mothers of children from the control group. This is consistent with the conclusions of Connolly and Vance (2010) that suggested that an inability to cope with disruptive behaviours may enable them to continue. Consequently, children from non-intact families with ODD may be at further risk when family dysfunction leads to an

increase in maternal psychopathology. Therefore, addressing family conflict and functioning may reduce the risk of subsequent disorders and comorbidity for children with ODD.

### **Limitations and Future Directions**

Overall, the results of this study confirm and extend existing data on the relationship involving divorce and separation with child psychopathology. However, the findings and conclusions made in this study must be considered with regard to a number of points. The findings reported here are based on a single study. As a result, there is a need for cross-validation of the findings to allow for generalisability. Further, the study involved a cross-sectional design with data collected concurrently, which makes statements regarding causality only tentative in nature. In addition, the data collected from the participants in this study were all obtained by the same clinic. Therefore, it is possible that this may constitute bias for the sample examined, limiting the findings and conclusions made in this research.

Additionally, as all the measures were obtained through self-rating (generally by the mother); it is possible that the relations noted between these measures may in part reflect common method variance shared by these measures. Common method variance occurs when unrelated variables may be linked by the method of collection (Lindell & Whitney, 2001; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Although this does not invalidate the finding in this study (Doty & Glick, 1998), the potential impact is noteworthy (Conway & Lance, 2010), and the conclusions may be viewed more cautiously. Future research may wish to validate these results with ratings from multiple sources (e.g., self-reports, peer-reports, and teacher-reports). However, this approach also can be problematic, particularly in regard to child symptom ratings (Jarrett & Ollendick, 2008). This is partly due to low correlations

between different informants' ratings of child symptomatology (e.g. Achenbach, McConaughy, & Howell, 1987) and, consequently, it can be challenging to achieve convergence across multiple informants (Edelbrock & Costello, 1988).

Additionally, given that, in the main, mothers completed the FAD ratings, potentially results may be confounded by a biased perception of family adjustment, in particular among rating from mothers who divorced their child's father. Further, as this study focused on child and maternal psychopathology as indexed by the CBCL and HSCL respectively, it cannot be certain if these same relations will hold for other measures of child and maternal psychopathology. Moreover, the omission of data on paternal psychopathology limits the examination of the full magnitude of the effect of parental psychopathology. These findings demonstrated a direct effect of maternal psychopathology on internalising and externalising symptoms in children with ODD. However, were future studies to examine both maternal and paternal psychopathology in combination, it would be expected that the strength of the associated risk would be increased (Brennan, Hammen, Katz, & Le Brocque, 2002).

Further, although careful training of research staff prepared them for conducting clinical interviews, inter-rater reliability data were not available. Thus, some error may be present among these data. Moreover, as this study involved clinic-referred children, the applicability of the findings for children in the general community cannot be predicted (Kendall, Brady, & Verduin, 2001). Nonetheless, this limitation does not necessarily negate the findings. Indeed, when examining risk factors for psychopathology it has been argued that the use of clinical populations is necessary to ensure there is definitive clinical utility in the research (Krueger & Markon, 2006). However, it would be useful for future research to examine samples



from various clinics and from the general community in the same study, with consideration to the limitations stated previously.

Clearly, there is need for more research in this area. Future studies may wish to use SEM procedures to examine, from a developmental-longitudinal perspective, the interplay of parental relationship status, family adjustment, and parental psychopathology on internalising and externalising problem behaviours in children with ODD for both community and clinic-referred samples. It will be useful if this research obtained data from multiple sources, and also examined a wider range of measures. Moreover, the inclusion of paternal psychopathology measures may create a more complete picture of these relationships.

### **Implications**

Despite these limitations, the findings demonstrate that children with ODD with non-intact families are associated with a higher risk of increased symptom severity and that maternal psychopathology has a direct effect on child symptomology. Additionally, in non-intact families there is a flow on effect from family adjustment to maternal psychopathology such that, a chain of causality may be inferred. These data are concerning in regard to evidence emphasising the generally negative consequences of divorce for both children and adults (Amato, 2000).

Indeed, the risk of subsequent disorders even after the remission of ODD would increase the vulnerability of children with ODD. In particular, when separation, divorce, family dysfunction and/or maternal psychopathology have been present, children with ODD would be less likely to develop supportive relationships and engage with academic and occupational opportunities. However, Nock et al. (2007) established that the risk of subsequent disorders was significantly lower after

remission of ODD, suggesting that successful treatment may reduce the risk subsequent disorders and later problems with relationships, legal issues and employment.

Clearly, studies are needed to investigate means to broaden the therapeutic effect of evidence-based treatments for ODD and conduct problems in order to enhance outcomes in these families (Anant & Raguram, 2005; Haas et al., 2011; Hawes & Dadds, 2005; Kroneman, Hipwell, Loeber, Koot, & Pardini, 2011). One encouraging direction is to evaluate the efficacy of brief marital therapy for distressed couples of children with ODD/CD receiving behavioural parent training (e.g., Dadds, Schwartz, & Sanders, 1987). In this study, families were provided with child management training or a combination of child management training and partner support training. Similar decreases in externalising symptoms post-treatment, at 6-month follow-up were found in both groups, although children from maritally discordant families in the child management training only group had significantly higher rates of relapse (Dadds et al., 1987). Additionally, other factors need to be considered. For example, the temperament of children with ODD can present important implications for treatment. A study that examined the impact of callous-unemotional traits (e.g., constricted emotionality, limited guilt and empathy) on treatment outcomes with boys with conduct problems found that boys high in these traits were less responsive to discipline, such as time out, than boys without callous-unemotional traits (Haas et al., 2011; Hawes & Dadds, 2005).

This may be accounted for by reward-driven and punishment insensitive behavior patterns (Frick & White, 2008). Research has shown that children with these characteristics exhibit reduced sensitivity to cues of punishment once a reward-orientated response is primed and reduced reactivity to threatening and emotionally

distressing stimuli (Blair, 1999; Frick et al., 2003). The high reward drive and low fearful inhibitions of these children, compared with children with conduct problems but without these traits, show they are more responsive to the reward components of parent training (e.g., praise, token reinforcement) than to the disciplinary components (e.g., time-out, response cost; Hawes & Dadds, 2005).

The current study reiterates the susceptibility of negative outcomes to children diagnosed with ODD from non-intact families. It is important to note, however, that marital dissolution is not always harmful to those involved. In fact, most children, especially those whose parents no longer engage in high conflict interactions, are resilient (Kelly & Emery, 2003). Unfortunately, children presenting with chronic behavior problems prior to divorce are likely to react poorly to divorce (Hetherington & Stanley-Hagan, 1999). Furthermore, marital discord can have a negative impact on treatment outcomes for children and adolescents with internalising and externalising problem behaviour (Amaya, Reinecke, Silva, & March, 2011).

Taking this into consideration, clinicians and researchers treating children with ODD and disruptive behavior disorders should routinely assess marital and family functioning and, if necessary, intervene when parents engage in high conflicting in order to prevent these children from experiencing the negative effects of family dysfunction and marital dissolution (Goodyer, Nicol, Eavis, & Pollinger, 1982). Conversely, because divorce may promote better outcomes for children than those who continue to witness frequent, intense, and unresolved marital conflict (Cummings et al., 2005; Kelly and Emery 2003), separation or divorce may be an appropriate outcome for highly distressed couples parenting challenging children. Indeed, it can be inferred from the findings in the current study that a therapeutic

focus on family adjustment may lessen the risk to children with ODD from non-intact families.

### **Summary**

In conclusion, the aim of the study was to examine ODD in the context of the family. Structural equation modelling analyses indicate support for model applicability. The findings demonstrated that children with ODD from non-intact families are at a higher risk of increased symptom severity than children with ODD from intact families. Additionally, maternal psychopathology was shown to have direct effects on child symptomology and in non-intact families there is a flow on effect from family adjustment to maternal psychopathology such that, a chain of causality may be inferred with regard to child symptomology.

Indeed, it is evident that children with ODD from non-intact families are at risk of increased symptom severity (Amato, 2000, 2001; Hetherington et al., 1999; Kelly & Emery, 2003; Lansford, 2009; O'Connor, et al., 2000). Robbers et al. (2011) suggested that early childhood externalising problems may precede and predict later parental divorce. Further, marital status was found to be the best predictor of observed child defiance in the home for children with conduct problems in treatment (Webster-Stratton & Hammond, 1990).

Additionally, when exposed to maternal psychopathology the risk of child psychopathology is increased for children with ODD (Burke et al., 2002; Connolly & Vance, 2010; Goodman et al., 2011; Kaplan & Liu, 1999; Spence et al., 2002). Connolly and Vance (2010) argue that conduct problems may be maintained by the mother's inability to cope with the disruptive behaviours, therefore enabling its continuance. This suggestion supports previous research that found mothers of children with CD were poorer at supervision and reported less persistence in

discipline than mothers of children from the control group (Frick et al., 1992).

Although the non-significant direct path from family adjustment to child psychopathology was not consistent with previous research, Miller et al. (1985) argued that not all families with a severely disturbed member would show significant dysfunction, healthy functioning would be expected across many dimensions which may account for the current findings. Additionally, the screening tool used to measure family functioning was designed to be use with intact families. Therefore, many of the questions may be irrelevant to those who are divorced or separated in the current study (Portes, et al., 1992).

The current study was limited by a cross-sectional approach with a clinic-referred sample and possible biases that may have confounded results. It is recommended that future research focus on broader samples and measures in the context of developmental-longitudinal studies to extend and validate these findings. The implications for treatment intervention are evident and complex. Clinicians and researches are encouraged to engage in screening procedures to identify those children at risk from family dysfunction and marital dissolution that may exacerbate their symptomology, potentially leading to more severe conduct problems such as CD, antisocial personality disorder, and sociopathy. Overall, non-intact families with children diagnosed with ODD may benefit not only from parent training programs, but from concurrent training to assist better family adjustment and couple support. Additionally, a particular focus on positive parenting strategies may enhance outcomes for those children with severe or comorbid symptomology.

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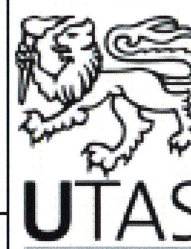
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## Appendix

### Ethics Exemption Approval Letter

Social Science Ethics Officer  
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Katherine.Shaw@utas.edu.au




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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

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7 November 2012

Dr Janet Haines  
School of Psychology  
Private Bag 30

Student Researcher: Stefanie O'Rourke

Sent via email

Dear Dr Haines

**Re: EXEMPTION FROM ETHICAL REVIEW**

**Project Title: Maternal Psychopathology and Family Relationships as Predictors of Internal and External Problem Behaviours in Children with Oppositional Defiant Disorder: A Structural Equation Modelling Approach**

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We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee has considered the above application for exemption from ethical review.

From the information given at this time this project has been deemed to be exempt from ethical review on the following basis:

**The project is negligible risk research, and involves the use of existing collections of data or records that contain only non-identifiable data about human beings, and therefore can be exempted under Section 5.1.22 of the NHMRC National Statement on Ethical Conduct in Human Research (2007).**

On this basis the described activity is outside the scope of the Human Research Ethics Committee's arrangements and as such does not require review by the HREC (Tasmania) Network.

Yours sincerely

Katherine Shaw  
Ethics Officer  
Tasmania Social Sciences HREC